Insecticide Use Tied to RA, Lupus in Women

BY AMY ROTHMAN SCHONFELD

PHILADELPHIA — Women who personally used insecticides were more likely to develop autoimmune rheumatic diseases, and their risk increased with more frequent and longer use, according to findings from the Women's Health Initiative observational study presented by Christine G. Parks, Ph.D., at the annual meeting of the American College of Rheumatology. Similar results were found for those whose homes were treated with insecticides by others.

"Previous studies have suggested that rheumatoid arthritis and lupus might be associated with farm work and agricultural pesticide exposure, but these exposures are generally rare in the population. On the other hand, exposure to personal use of insecticides and other residential exposures are more common. Studies show about three-quarters of U.S. household reported using pesticides in the home or garden.

A recent survey in the National Health and Nutrition Examination Survey [NHANES] found that 20% of respondents applied insecticides in the past month, said Dr. Parks, an epidemiologist with the National Institute of Environmental Health Science in Research Triangle Park, N.C.

To examine whether there is an association with autoimmune rheumatic diseases and personal or residential insecticide use, investigators mined data from the WHI observational study, which included 76,861 postmenopausal women (aged 50-79 years) and looked at self-reports of lifetime personal or residential insecticide use.

The use of disease-modifying antirheumatic drugs after 3 years of follow-up was considered to be confirmation of the presence of an autoimmune rheumatic disease.

The investigators identified 213 new cases of autoimmune rheumatic diseases, of which 27 were systemic lupus erythematosus and 178 were rheumatoid arthritis. Eight of the women had both conditions.

Compared with the women who had never used insecticides, those who personally mixed or applied insecticides had greater risk of developing a rheumatic disease, with stronger associations among those who used insecticides more frequently.

For instance, the hazard ratio for those who either never used insecticides or used them for less than 1 year was 0.94, compared with 1.5 for those reporting 1-4 years of exposure, 1.2 for 5-19 years of exposure, and 1.9 for 20 or more years of exposure. The trend across time was statistically significant ($P = .0034$).

Similarly, the risk of developing a rheumatic disease was doubled in women who had used insecticides more frequently (six or more times per year), compared with those who personally had never used insecticides (HR 2.0). The trend with increased frequency of use also was statistically significant ($P = .0036$).

Hazard ratios and 95% confidence intervals were estimated by multivariate models. "Importantly, the associations we saw were not explained by other factors that we considered, including farm history; age; race; region; ethnicity; socioeconomic factors, such as education or occupation; smoking; or other risk factors for disease," Dr. Parks said.

The investigators also confirmed the association between living or working on a farm, and the risk of autoimmune rheumatic diseases (HR 1.97; 95% CI 1.14-3.42 for 20 years). The highest risk was found in women who had lived on a farm and who also reported personal insecticide use.

Living in a house where insecticides had been used for 20 years or more also elevated the risk of autoimmune rheumatic diseases, regardless of farming history (HR 1.85; 95% CI 1.13-3.04 for 20 years).

No information was provided about specific types of pesticides used. Although the findings are not proof of a causal relationship between pesticide exposure and the development of rheumatic illnesses, the take-home message is that people should follow recommended practices to reduce their exposure to pesticides, Dr. Parks said. ■